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IV.—*Notice respecting Human Remains discovered in the Cabeço da Arruda, by F. A. Pereira da Costa; and in the Grutas da Césarêda, by J. F. N. Delgado, accompanied with various Remains of Human Art.* By GEO. BUSK, F.R.S.

[Read Feb. 25th, 1868.]

THE collection of casts of human and other bones, and of flint and stone implements of various kinds, now before the meeting, was forwarded, a short time since, from Portugal by M. da Costa, to Sir Charles Lyell, and by him placed in my hands for exhibition before the Ethnological Society. Mr. John Evans having kindly undertaken to give a notice respecting the works of art, my own observations will be confined solely to a brief description of the human remains, and of the conditions under which they were found. As an account of the same objects was, I understand, given by M. Mortillet to the Anthropological Congress in Paris, it will be the less requisite on the present occasion to enter at any great length into the subject, and this is rendered even less necessary, since M. da Costa,* and M. Delgado† have each published an elaborate report of their researches, under the auspices of the Geological Commission of Portugal.

I. HUMAN REMAINS FROM THE CABEÇO DA ARRUDA.

The Cabeço or Hill of Arruda is a small elevation, situated on the right bank of the Valley of Ribeira de Muge. Its length is about ninety-five metres, and breadth forty, whilst its height is about five metres above the sandy plain upon which it is placed, and ten or twelve above the level of a neighbouring marsh. The sandy plain upon which the heap is situated belongs to the newer pliocene period. Its structure, as shown in a section, appears to be that of a “kitchen midden,” or “shell mound”; and there can be no doubt that the elevation is of

* *Da existencia do Homem em epochas remotas no Valle do Tejo. I. Opusc. Noticia sobre os esqueletos humanos descobertos no Cabeço da Arruda.* Lisbon, 1865.

† *Da existencia do Homem no nosso Solo em tempos mui remotos, provada pelo Estudo das Cavernas. I. Opusc. Noticia ácerca das Grutas da Césarêda.* Lisbon, 1867.

that nature; and from some of the appearances described, there is reason to believe that the superficial layers on the south-east part are of a more recent date than the rest. The human bones were almost all found in a lower bed of broken shells, imbedded in a sort of matrix composed of them, and immediately beneath a layer containing pebbles mixed with the broken mammalian bones. The skeletons were all found within a small compass, and lay extended either on the back or side, with the heads towards the north-west, and the face looking towards the east. The bones collected on this site must have belonged to at least forty-five or more individuals of all ages. Many of the bones were broken, and the crania especially were so crushed as to lead to the supposition either that their possessors had succumbed to some destructive accident, or, as is more probable, that they had been fractured by the pressure of the superincumbent deposits. M. da Costa, in his interesting "Memoir," gives several reasons in support of the latter supposition, which undoubtedly appears to be by far the more probable of the two.

The collection of casts of human bones from this site includes five of the lower jaw, a frontal and an occipital bone, and broken fragments which, when put together, make up a considerable part of a cranium. Although numerous other bones of the skeletons occurred, M. da Costa offers no remarks concerning them. This is much to be regretted, since it would have been interesting to ascertain whether, for instance, the *tibia* and *femur* presented the curious characters shown by many of those bones from the Genista Cave in Gibraltar, and which have since been remarked in prisca bones from several other localities, and belonging in all probability to the same period. I allude to the peculiar compression of the *tibia* and the great development of the *linea aspera* of the *femur*, which caused Dr. Falconer and myself to apply to bones so fashioned the terms "platynemic" and "carinate."

M. da Costa enters into minute details respecting the jaws and teeth, and the various bones of the cranium, but neither, from what he says, nor from inspection of the objects themselves as now exhibited to the meeting, does there appear to be much of importance to remark upon in them. As is almost universal in ancient crania, as well as in those of existing savage races, the teeth are for the most part worn flat, and rarely exhibit any trace of caries or decay.

With respect to form and dimensions of the cranium as a whole, in the absence of any specimen sufficiently entire to afford exact measurements, M. da Costa has been compelled to content himself with merely approximate measures. He insti-

stutes a comparison between one of the Cabeço da Arruda skulls and the famous Engis cranium, with the following results :—

	Cabeço d'Arruda.	Engis.
	Inches.	Inches.
Horizontal circumference - - -	19·2	20·7
Longitudinal arc (to occipital spine)	12·2	13·3
Sagittal suture - - - - -	5·3	5·12
Length - - - - -	6·3	7·4
Breadth - - - - -	5·15	5·15

Which would seem to show that the cranium he measured was at any rate brachycephalic (817).

II.—The other human remains of which casts are before the meeting were procured from certain caverns on the calcareous plateau of Césaréda, and chiefly, as it would seem from M. Delgado's account, from a cavern termed "Casa da Moura," or "Moor's House." The cavern in question is formed in jurassic limestone, and is situated at a short distance from the crest of the escarpment, which forms the northern boundary of the plateau, about a mile south-east of the village of Serra-de-El-Rei. The cavern is entered by a vertical opening or pit, three or four yards in diameter. The descent is somewhat difficult, and is only effected by careful climbing down the well-like opening; but nevertheless, from certain indications, it would seem that this entrance had been, at one time, in considerable use. The chamber into which the entrance opens communicates with a second of large size by a narrow passage. The stalagmitic floor of the first chamber is entirely covered with extraneous materials, the deposit decreasing in thickness in proportion to the distance from the entrance, being in its thickest part about four and in the thinnest about two metres in depth. The stalagmitic floor of the inner chamber is wholly uncovered. Two distinct layers may be discovered in the deposit on the floor of the first chamber—a superficial and a deep—the former of loose consistence, composed of dark-coloured mould, intermixed with fragments of rock; and the lower, of more compact nature and of a reddish colour, forming a sort of calcareous breccia. In most parts the line of distinction between these two layers is quite clear; but in some they appeared as it were to run into each other. The layers were distinct not only in their mineralogical characters, but still more so by their organic contents. The upper dark-coloured, incoherent deposit abounded in human bones and works of art; whilst the lower was extremely rich in the remains of animals, chiefly of the rabbit, and of small birds, though here and there

affording a few flint and other implements, together with scanty human bones; but these latter relics were, in all cases, limited to the uppermost stratum. Amongst the human remains so found, M. Delgado notices a human canine tooth, worn in a very peculiar and singular manner; but this he does not describe. The mammalian remains in the lower stratum are referred to the genera *Erinaceus*, *Canis*, *Felis*, *Hypudæus*, *Lepus*, and *Cervus*, but by only a single species of each, excepting *Canis* and *Felis*. Of the former, M. Delgado thinks he has discerned bones belonging to the wolf and to another species with rather larger bones than the fox; and of the latter, four or five species or forms occurred,—one apparently the size of the lynx, or *F. serval*, and others little larger than *F. catus*. As usual in caverns, the *Hypudæus* appears to be the common water-rat (*Arvicola amphibius*), whilst the *Lepus* is identified with the existing rabbit. The genus *Cervus* appears to be represented only by one or two molars, probably belonging to the milk series of a species about the size, and perhaps identical, as I should imagine, with *C. dama*. In the upper stratum, remains were met with of *Vespertilio*, *Canis lupus*, *C. vulpes*, and a third undetermined species of *Canis Myoxus* (sp. ?), *Mus musculus*, *Lepus cuniculus*, *Equus*, *Cervus*, and *Ovis* or *Capra*.

On commencing the investigation of the constituents of the upper stratum of the deposit in the first chamber, numerous remains of the human skeleton, and of works of human art, were at once met with. The latter, consisting of polished stone implements of various kinds, of flint knives and arrowheads, and other implements of flint, bone, and stag's horn, together with numerous fragments of coarse black pottery, all confusedly mixed with the bones and teeth of animals, rolled fragments of stalactite, and other pebbles, flint and quartzite chips, etc., etc., and curious tablets of schist with designs upon them, which have been noticed on the present occasion by Mr. Evans, and which M. Delgado thinks may have been worn as amulets. There were also found numerous particles of charcoal, many of which still remained adherent to the portions of rock and pebbles, which had, in all probability, formed a hearth.

With the exception of a few articles of modern origin, found on or quite near the surface, the entire collection appears to belong to one and the same remote period.

With respect to the human bones, the first thing that excited surprise was their fragmentary state, and the scattered condition in which the fragments were found. Another circumstance, noted by M. Delgado, was the relative preponderance of certain portions of the skeleton. As regards the head,

for instance, the upper jaw was rarely met with ; whilst, on the contrary, the lower was represented by numerous examples, and above all, teeth were found in extraordinary abundance. Of the long bones, which were incomparably more numerous than the ribs, vertebræ, or any of the spongy bones, the greater number wanted the articular extremities ; and besides this, most of them were fractured perpendicularly to their axis, and some split longitudinally, whilst others appeared to have been gnawed, or to have been marked by some cutting instrument. The general aspect of the jaws showed that the greater part of them must have belonged to young persons, and some even to infants of tender age.

The only entire cranium discovered in the Casa-da-Moura is represented in the cast now on the table. It was found at the end of a deep trench made in the floor of the cave, and was lying immediately above the stalagmite, and no other bones of the skeleton, that could with certainty be referred to it, were found within a moderate distance. M. Delgado is unable to account for this isolated position of the skull, except on the supposition that the place had been disturbed. No implements of any kind were discovered in close contiguity with the cranium ; but at no great distance, and at the same level, polished stone axes of the celt-shaped type, flint knives, worked portions of deer's-horn, one of the engraved tablets, a bronze arrowhead (the only metallic relic met with), and other things, were found. M. Delgado enters at considerable length into the question of the relative age of this cranium as compared with the other human remains in the cavern ; and on the whole thinks himself justified in concluding that, in all probability, it belonged to the most ancient period. He then goes on to describe the characteristics of the *cranium*, and points out that it differs very widely from those or rather from that found in the Cabeço-da-Arruda, and which, as has been stated, was remarkably *brachycephalic*, in its belonging to the *mesocephalic*, type, or even, as he observes, to the truly *dolichocephalic*, to which I should certainly refer it, seeing that its cephalic index is $\cdot 764$.

The following are the principal dimensions, in inches and tenths, of the cranium, as given by M. Delgado, and which correspond with those of the cast :—Length, 6·7 ; breadth, 5·3 ; height, 5·5 ; greatest frontal breadth, 4·5 ; circumference, 19·8 ; longitudinal arc, 14·7 ; longitudinal frontal arc, 5·1 ; longitudinal parietal arc, 5·2 ; longitudinal occipital arc, 4·4.

A lower jaw, which appears to have belonged to the cranium, presents, according to M. Delgado, characters in which it ap-

proaches the famed Abbeville jaw ; but I must say, that I am unable myself to perceive any marked resemblance between the two.

M. Delgado compares this cranium, which is most probably that of a female, with one described by M. Vogt, and found by Messrs. Rames, Garrigou, and Filhol, in the cave of Lombrive, in the south of France, and which is regarded by M. Broca as belonging to the Basque type. In this opinion I am myself strongly inclined to concur. I have seen several Basque skulls in Paris, and had an opportunity whilst in Madrid of examining a beautifully perfect cranium, which had been discovered in some ancient copper-mine workings in the Asturias, associated with hammers made of deer's-horn, and, if I remember correctly, stone implements. This cranium, which is of a beautiful green colour, presents very much the same proportions and contours as the cast now before us, and very exactly resembles the existing Basque type, as described by M. Broca. And it has been of especial interest to me to find that it also accords with several crania procured by Captain Brome, in a cave (not the Genista cavern), on Windmill Hill, Gibraltar, which were associated with numerous stone and bone implements, resembling in character those found in the Portuguese caverns and shell-mounds. The discovery of the same type of cranium, with the same associations, in another part of the Peninsula, lends additional strength to the supposition I have long seen reason to entertain, that traces of one and the same prisca type of man may be discerned, or will be discovered, throughout the length and breadth of the Iberian peninsula. And this view is quite in accordance with the opinion expressed by M. Broca, "that the ancestors of the Basques will be found neither among the Celts nor the rest of the Indo-European nations, but that our investigations respecting them must be directed towards Northern Africa."*

M. Delgado is inclined to the opinion that the conditions in which the human remains occur in the caverns of Césaréda, indicate the existence of cannibalism at that period in Portugal, and he adduces many ingenious arguments in favour of such a supposition. My own opinion, however, coincides with that of M. da Costa, that the evidence to that effect is by no means conclusive.

In conclusion, I would call attention to the extraordinary resemblance between the condition and associations of the human remains in the Casa-da-Moura, and those under which they occurred in the Genista-Cave in Gibraltar.

* *Lectures on Man.* By Dr. Carl Vogt. Edited by Dr. James Hunt. 1864. P. 383.